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Supreme Court
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(22)

No. 05-1120

In the
Supreme Court of the United States

JAMES R. MILKEY *et al.*,
Petitioners,

v.

UNITED STATES,
ENVIRONMENTAL PROTECTION AGENCY, et al.
Respondents.

On Writ of *Certiorari* to the United States
Court of Appeals for the District of Columbia Circuit

MOTION OF *AMICUS CURIAE* JEROME B. CARR, Ph.D. TO FILE A BRIEF IN SUPPORT OF THE RESPONDENTS

Mr. Albert Auburn, Esq.
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Wellesley MA 02482
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MOTION

Pursuant to Supreme Court Rule 37, I have tried to secure written consent for the filing of the attached *Amicus Curiae* from counsel for the Petitioners and Respondents. Although counsel for the Respondents granted such consent, counsel for the Petitioners withheld it, even though *Amicus* had been told that the Respondents have allowed almost all of the Briefs as requested by the Petitioners. Accordingly, I, Jerome B. Carr, Ph.D. Geologist Geophysicist, and Certified Professional Hydrologist, author of the Brief *Amicus Curiae,* move this court for permission to file the Brief *Amicus Curiae* which is submitted herewith. *Amicus* makes this motion on the following grounds.

Amicus Curiae, Jerome B. Carr, Ph.D., has 40 years experience in review of meteorological data related to applied sciences including meteorology, climatology, hydrology, limnology (study of lakes), oceanography, and telmatology (study of wetlands). I taught *Historical Geology* at Purdue University, and *Air and Land Pollution* for three years at Boston College. I worked for two and a half years in the Atmospheric Physics Department at Sperry Rand Research Center. I am a member of the American Association for the Advancement of Science, and the American Geophysical Union (AGU). As a member of the AGU, I subscribe to their meteorological Journals *Climate and Atmospheric Dynamics*, and *Air Composition and Chemistry*. I am a member of nine other professional scientific organizations, and subscribe to over 20 additional scientific journals. In addition I have built a large technical library at the Carr Research Laboratory, Inc. which was founded in 1974.

The only reason I am asking for permission to have the court accept this Brief *Amicus Curiae* is to raise and answer **two very fundamental questions** that should be presented to this Court, knowing that answering these questions will make the Court's work far simpler and so its decision will be based on defensible world class science.

The legal cause for asking for acceptance of this Brief *Amicus Curiae* is because the Massachusetts Attorney General's office declined to allow permission for me to submit this Brief. Note that my request to the Attorney's General's Office was forwarded to the Sierra Club's lawyer for a decision. I was told over the phone that they had all the climate history they wanted and they did not want any more. I was told that if I submitted a copy of my Brief for them to review, they might consider allowing my Brief to be accepted. However, based on the negative tone of the statements made by the Sierra Club's lawyer, it was very clear that if my Brief *Amicus* did not support the Plaintiff's views, my submittal request would be denied, and this motion would be required.

Note, this work is all *pro bono publico* and neither I nor my firm is being paid for my time and effort. Nobody is prejudiced by this motion or the attached Brief.

Wherefore, Jerome B. Carr, Ph.D., respectfully requests that this Court grant *Amicus Curiae* leave to file the attached Brief in support of linking high quality science to high quality law review by this Court.

Respectfully submitted,

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Dated: 29 August 2006

Respondent's Consent Letter follows this page.

Carr Research Laboratory, Inc.
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MEMO - via Certified Mail

FROM J. B. Carr, Ph.D.

FAX = 508-647-4737
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carr@carr-research-lab.com
DATE = 14 August 2006

TO: James R, Milkey, Esq.
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Boston, MA 2108

William Albert Anderson. Esq.
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1666 K Street, NW
Washington DC 20006

SUBJECT: Permission to file of Brief *Amicus Curiae*,
U.S. Supreme Court No. 05-1120

This is to inform you of my intention to file a Brief *Amicus Curiae* for U.S. Supreme Court Docket No. 05-1120. I will be submitting this document explaining the climatology and evidence from historical geology on this matter. I have been told that I should request your permission in order to submit this brief *Amicus*. I hope that you will grant this permission to help explain the complexities of the science in the case in a brief and understandable fashion for the court. I hope that all parties and the Court will find my work of value in this case.

Also, could you have one of your staff members send me a copy of your most recent document concerning the technical merits of the case. My e-mail address is carr@carr-research-lab.com., and my fax number is above.

Thank you.

If you have any questions or comments, please don't hesitate to contact me.

Cordially,

Jerome B. Carr

Jerome B. Carr, Ph.D.
Environmental Scientist,
Geologist, and
Certified Professional Hydrologist

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August 15, 2006

VIA HAND DELIVERY

The Honorable William K. Suter,
Clerk Supreme Court of the United States
1 First Street, N.E.
Washington, DC 20543

Re: *Massachusetts v EPA*, No. 05-1120

Dear Mr. Suter:

Please be advised that, as contemplated by Rule 37.3(a), the Alliance of Automobile Manufacturers, the Engine Manufacturers Association, the National Automobile Dealers Association, and the Truck Manufacturers Association consent to the filing in this case of all *amicus* briefs that otherwise comply with the Court's rules.

Thank you for your cooperation and assistance.

Very truly yours,

William A. Anderson, II

WAA/mmr

cc: The Honorable Paul D. Clement
James R. Milkey, Esquire
Thomas L. Casey, Esquire
Russell S. Frye, Esquire
Norman W. Fichthorn, Esquire
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The Honorable William K. Suter, Clerk
Supreme Court of the United States
1 First Street, N.E.
Washington, DC 20543

22 August 2006

Re.: Commonwealth of *Massachusetts, et al.* v. *U.S. Environmental Protection Agency, et al.*, No. 05-1120

Dear Mr. Suter:

Please be advised that respondent CO_2 Litigation Group hereby grants its consent, pursuant to Rule 37.3(a), to the filing in this case of all *amicus curiae* briefs that otherwise comply with the Court's rules.

Thank you for your attention to this matter.

Sincerely,

Russell S. Frye

cc: Hon. Paul D. Clement
James R. Milkey
David Bookinder
Thomas L. Casey
William A. Anderson, II
Norman W. Fichthorn
Stephan C. Volker
Jerome B. Carr, Ph.D.

In the
Supreme Court of the United States
October Term, 2005

No. 05-1120

James R. Milkey *et al.*,
Petitioners,

v.

UNITED STATES,
ENVIRONMENTAL PROTECTION AGENCY, et al.
Respondents.

On Writ of *Certiorari* to the United States
Court of Appeals for the District of Columbia Circuit

BRIEF OF *AMICUS CURIAE* JEROME B. CARR, Ph.D. GEOLOGIST, GEOPHYSICIST & CERTIFIED PROFESSIONAL HYDROLOGIST IN SUPPORT OF THE RESPONDENTS ON THE MERITS

QUESTIONS PRESENTED FOR REVIEW

1- Does carbon dioxide (CO_2) qualify as a "pollutant"?

2- What does Historical Geology and Historical Climatology teach us about glacial cycles and the start and ending of glacial conditions relative to CO_2 concentrations in the atmosphere?

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INTERESTS OF THE *AMICUS CURIAE*

Amicus Jerome B. Carr, Ph.D., seeks to bring to the Court's attention the views logically derived from scientific interpretation of glacial and climate data published in the scientific literature concerning the long term glacial history of the Earth, its recorded climatic changes, and their relationship, or lack thereof, to the carbon dioxide (CO_2) content of the atmosphere.[1]

Amicus Curiae Jerome B. Carr, Ph.D., has spent much of his 40 year career working on sciences associated with the historical behavior of the atmosphere; including but not limited to: (1) teaching *Historical Geology* at Purdue University, (2) teaching *Air and Land Pollution* at Boston College for three years, (3) two and a half years of meteorological and climatic studies at Sperry Rand Research Center, and (4) more than 30 years of on-going and routine processing of climatic data for hydrological studies. Since 1984 I have been a Certified Professional Hydrologist by the American Institute of Hydrology. Knowing that both science and the interpretation of the law requires detailed knowledge and precise application of that knowledge to benefit all our citizens and residents, I am seeking to assist the Court by briefly reviewing the history of the Earth and its atmosphere relative to the CO_2 concentrations as a possible cause of recent or future atmospheric warming.

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1 Pursuant to Supreme Court Rule 37.6 *Amicus* states that he alone authored this Brief, without benefit of counsel, and that no one other than the *Amicus* made a monetary contribution to the preparation or submission of the brief. Pursuant to Supreme Court Rule 37.3(a) *Amicus* submitted a consent letter to both parties for the filing of this Brief, and counsel for Respondents signed a consent letter, while counsel for the Plaintiffs verbally declined to do so, and never bothered to reply in writing.

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JURISDICTION

The definition of "pollutant" is "something that pollutes." The definition of the verb "pollute" in its clearest form is "to make unclean or unfit for use." Based on these simple straight-forward definitions, carbon dioxide (CO_2) does not make the atmosphere unclean because it is an odorless, tasteless, colorless, invisible gas; which under normal circumstances is stable, inert, and non-toxic.[2] It does not make the atmosphere unfit for use because in the geological past, from 25 to 45 million years ago, CO_2 levels have been measured at 1,000 to 1,500 parts per million (ppm), while modern post-glacial concentrations are now measured are in the range of 200 to less than 400 ppm.[3] Thus, since plant life on land has existed for some 450 million years, and since air breathing animals have existed for about 375 million years, there has been no evidence that carbon dioxide has ever made the atmosphere "unfit for use" under all the known and unknown variations of CO_2 concentrations in atmospheric chemistry. Thus, CO_2 is not a pollutant, and is not, and should not, be regulated under any part of the Clean Air Act nor under any air pollution section of 40 CFR.

SUMMARY OF THE ARGUMENT

It is well known that there have been four major glacial periods in the past 1.72 million years. Even within

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2 Lindsey, J. S.; *McGraw-Hill Encyclopedia of Science and Technology*, 5th Edition, Volume 2, page 585; McGraw-Hill Book Co., New York, 1982.

3 Pagani, M., et al, Marked Decline in Atmospheric Carbon Dioxide Concentrations During the Paleogene, Science Vol. 309, No. 5734, pp. 600-603, 22 July 2005.

the last 10,000 years, which defined the most recent glacial retreat, there have been significant climatic fluctuations. The last period of glacial advances and associated cooling lasted from about 1300 AD to 1850 AD.[4] There is no consistency within the geological and climatic record that these glacial advances and retreats were caused by changes in atmospheric chemistry, and in specific with carbon dioxide (CO_2)concentrations in the atmosphere. Thus CO_2 is not a pollutant as defined in the best dictionaries, nor will its regulation by any level of government prevent either cooling or warming of the atmosphere in the future.

ARGUMENT

Scientific evaluation of climatic conditions must seek understanding of atmospheric behavior based on the long term records. If carbon dioxide (CO_2) concentrations in the atmosphere fail to explain all the known warming and cooling climatic events related to glaciation and deglaciation, then CO_2 emissions from any sources most certainly should not be regulated by the EPA or any state or federal regulations. A very brief summary of large-scale glacial events since vigorous life existed on earth follows, first with the coarse scale CO_2 data of the earlier geological periods, then with finer scale data from the more recent geological history, and then during the Little Ice Ages in human history.

Note, in this Brief, the term major glaciation means glaciers were present over a significant portion of at least one continent. Small-scale glaciations due to localized mountain building are not counted as large-scale events because they are not caused by cooling or warming initiated by possible world-wide changes in atmospheric chemistry.

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4 Grove, Jean M.; *Little Ice Ages*, Page 505, Routledge; Taylor Francis Group, New York, 2004.

Note also that the basic premise of climate temperatures driven by atmospheric chemistry means both the cooling events and the warming events which are associated wit h large-scale glaciation should be reflected in the atmospheric chemical data. If large scale atmospheric temperatures are truly controlled by the heat retaining gases in the atmosphere, then those gases should affect both warming and cooling. Failure to explain both cooling and warming means the concept of chemical drive glaciation is invalid.

As background, this Brief reviews the history of the earth going back to the start of the Cambrian Period when complex life began to leave a very obvious and wide-spread fossil record. Since many readers may have forgotten their basic earth science, each geological period will have its ages given for added clarity. Thus, the Cambrian Period started 590 million years ago, and ended 505 million years ago. There was no large scale glaciation for those 85 million years.

The Ordovician Period immediately followed the Cambrian and it ended 438 million years ago. During the late Ordovician, continental glaciation existed from 448 million years ago to 438 million years ago.[5] Thus the end of the glacial conditions ended the Ordovician. However, the CO_2 concentrations in the atmosphere were measured at about 12.1 times higher than the present CO_2 concentrations at the start of the glaciation, and had dropped to an average of about 11 times higher than present when the glaciers disappeared.[6] This means that, in spite of

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5 Berry, W. B. N.; *McGraw-Hill Encyclopedia of Science and Technology*, 5th Edition, Volume 9, page 610; McGraw-Hill Book Co., New York, 1982.

6 Appenzeller, Tim; *Searching for Clues to Ancient Carbon Dioxide*, Science, Vol. 259, No. 5097, pp. 908-909, 12 Feb. 1993.

very high CO_2 concentrations, glacial conditions were initiated and that the initial warming was not related to rising low CO_2 concentrations. The data record tells us that CO_2 concentrations were decreasing before, during, and after the period of glaciation. Thus CO_2 was not a cause of the large scale glaciation, but an effect of something else, most likely related to increasing total amounts of plant life on earth.

During the next two geological periods (Silurian and Devonian) covering 78 million years, the Devonian ended 360 million years ago. There was no large-scale glaciation in either of these geological periods. However there was a continued decrease in the CO_2 concentrations followed by a large jump which started 427 million years ago which left a deep valley in the CO_2 graph, and the nadir of the valley was in the middle Silurian. The initial decrease in CO_2 followed by the sudden increase, followed a continued decrease did not trigger any large scale glaciation.

The next two geological periods were the Carboniferous, which started 360 million years ago and ended 286 million years ago; and the Permian which ended 248 million years ago. The Carboniferous in North America is broken into the Mississippian and the Pennsylvanian Periods. Since large-scale glaciation occurred for the latter two thirds of the Carboniferous and the just over half of the Permian, and since North American was not glaciated for much of the Carboniferous, the term Carboniferous will be used in this Brief.

During the later two-thirds of the Carboniferous Period, a long period of large scale glaciation occurred with an unknown number of glacial retreats and advances. This glaciation continued into the early and middle Permian Period with an unknown number of glacial advances and retreats. The glaciation was initially concentrated in the southern part of Africa, but later it

had expanded into Europe and North America. Preceding the initiation of glaciation, CO_2 concentrations were declining just as they had in previous geological periods, and actually reached concentrations less than at present during the middle of the glaciation. The Carboniferous Period is famous for its great coal deposits, and this coal deposition means carbon continued to be stripped from the atmosphere in huge amounts even after glaciation started. The estimated CO_2 concentration at the end of the mid-Permian glacial activity duplicated the estimated concentrations when the Carboniferous glacial activity started. This modest increase in CO_2 during the later half of the 78 million years of glaciation was most likely due to the decrease in coal deposition in the early Permian.

The next two geological periods are the Triassic and Jurassic, the later ending 144 million years ago. In terms of potential CO_2 initiation of cooling during these periods, there was a sharp dip in CO_2 concentrations at 147 million years ago, which was in the late Jurassic Period. There is no record of this sharp drop in CO_2 concentrations being associated with any glacial activity. Thus on a broad scale, CO_2 decreases had no consistent relationship to the initiation of glacial formation.

The periods from144 million years ago to 5.1 million years ago were free of large scale glaciation, just as the Triassic and Jurassic were. The geologic periods starting at 144 million years ago were the Cretaceous, Paleocene, Eocene, Oligocene and the Miocene. During this extended time there was a major increase in CO_2, followed by significant a decrease in CO_2, followed by a very large increase in CO_2, followed by a gradual decline in CO_2. None of the above decreases in CO_2 triggered a new glacial age. In fact, CO_2 measurements from sediment cores from the past 45 million years showed that the final decrease in CO_2 concentrations had at six sharp rising spikes in CO_2 until the Miocene.[3] Then in the Miocene from 23 million years ago to 5 million years ago, CO_2

concentrations were quite stable, and within the range of recent measurements. These more detailed and sustained low CO_2 measurements in the 18 million years of the Miocene are a very strong argument against the idea that low CO_2 causes cooling or triggers initiation of glaciation.

In more recent geological history, finer scale CO_2 and temperature data are available from ice cores. One illuminating study was done on the Vostok ice core from Antarctica, which was analyzed from the time period 155 to 115 thousand years ago. This included about 19% of the last northern hemisphere interglacial (mostly ice free) period and included about 12,000 years of the start of the latest continental glaciation known as the Wisconsin Period, which started 127,000 years ago. This 40,000 years of data plotted in Figure 7 of the study[7], revealed the following information about the modern relationship of CO_2 to temperature.

From 155,000 years ago to 145,00 years ago, CO_2 concentrations were slowly rising on average, and temperatures were fairly stable on average with 14 to 15 peaks and valleys. Then CO_2 concentrations increased and temperatures increased by 12°C (22°F), but note that temperatures peaked about 1,500 years after CO_2 peaked. Then for 6,000 years temperature declined 2.7°C (4.9°F) while CO_2 concentrations declined very slowly. At the end of the 6,000 years the new ice age started. After the ice age started, temperatures continued their rapid decline while CO_2 barely decreased for 3,000 years and then CO_2 actually increased for the next 9,000 years as the temperature decline continued. This 9,000 year increase in CO_2 concentrations, with temperatures continuing a

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7- Raynaud, D., et al.; *The Ice Record of Greenhouse Gases*, Science, Vol. 259, No. 5097, pp 926-934, 12 February 1993.

vigorous decline by another 4.7°C.(8.5°F), is proof positive that increasing CO_2 did not cause atmospheric warming.

These series of events for the entire period from the Cambrian to the start of the last glaciation tell us that there is no simple or consistent relationship between CO_2 and temperatures. Thus the presumed CO_2 relationship with temperature is not substantiated by a careful review of the scientific data. Rather, there are numerous feed-back mechanisms at which affect start glacial cooling and which trigger glacial melting. These include, but are not limited to, the following:

- peat formation in wetlands becoming coal acting as a carbon sink;
- carbon utilization in the oceans being dependent on ocean water circulation patterns;
- snow and ice accumulation on land masses reflecting a great deal of sunlight back to space and this has more temperature impact than CO_2 concentrations ever could;
- slow changes in the orientation of the earth's axis is known to affect seasonal warming patterns; and
- mountain building, plateau uplift, and closing the low latitude connection between the Pacific and Atlantic Oceans playing a significant role in dynamic effects on climate.

In addition, one needs to know that the duration of the three interglacial periods in the northern hemisphere. The first lasted 420,000 years, the second lasted 220,000 years, and the third lasted for 7,000 years. Given this track record, we should all be sure of one thing. That is, the northern hemisphere glaciers will continue to melt for anywhere from the next few years, to the next thousand years, to tens of thousands of years; and sea level will rise no matter what; unless the solar system passes into a dust cloud, or a major meteor strikes the earth, or if a new and major series of volcanic eruptions occur. Thus pursuit of minor reductions in CO_2 will be a waste of human effort and funds under all foreseeable

circumstances. Note also that methane is also a heat retaining gas in the atmosphere, and quite honestly the methane data better tracks the temperature data than does the CO_2 data in the study referenced. Thus, CO_2 is more than likely a poor and ineffective first choice for action.

On the large time scales discussed above, it must be stressed that the Earth has been free of continental glaciation for more that 80% of the post-Cambrian time, and for about 95% of the time since the Carboniferous/ mid-Permian glaciation ended. Thus the normal status of the Earth's climate is warm enough to prevent large scale glacial activity. This should make things 100% clear that the cry to "stop the glacial melting" is pure nonsense, because no law, regulation or policy can stop the Earth's climate from returning to its normal glacier free status.

On a finer time scale, everyone should be aware of the "Little Ice Ages" that took place over the past 10,000 years. The most recent of these lasted from 1300 AD to about 1850 AD. Concerning those cooler periods[4] it is concluded, on Page 569 of the detailed study of these cooling events, that CO_2 and methane, which is another gas that may trap heat in the atmosphere, are not directly causal of changes that triggered any of the four recent glacial events or their melting. This confirms my conclusions derived from review of the longer and mid-range historical geology and climatology data. Given the detailed analyses in that thorough study, I have chosen not to comment on that data in this Brief. In addition, I point out that on page 933 in Raynaud[7], the group of author scientists concluded that CO_2 variations observed are basically caused by ocean processes, by changes in the vegetation patterns, and by geological events that impact the surface of the Earth. This conclusion clearly and unequivocally confirms that the causes of climate change are far too complex for anyone to believe that reductions in CO_2 would protect any location from the warming associated with the slow rise in sea levels which

are inevitable given an eventual return to a normal glacial free Earth.

Now let us speculate on the future if a fifth ice age is going to follow the present warming trend. Under that scenario, if CO_2 would help warm the earth in any significant fashion, then the on-going increase in CO_2 might actually benefit the human race. If the glaciers return to the same extent as before, Massachusetts, Rhode Island, Maine, Vermont and New Hampshire will be buried under more than 1,000 feet of ice. In addition, in New York State; Albany, Syracuse, Rochester, and Buffalo will be 100% destroyed. The same applies to Cleveland, Detroit, Chicago, Milwaukee, and maybe St. Paul, Minnesota too. If a new glacial period is on its way, maybe the CO_2 could be beneficial if it can actually drive the climate, rather that just respond to it.

As a final note, it must be stressed that recent global warming may not be as severe as compiled from recent temperature statistics. Here it must be noted that many weather observation stations are in large cities or near airports. The temperature data from these stations are biased upwards by the heat islands caused by urbanization. I'll give one example from my home town. The local newspaper ran a story after a large snow storm with many pictures of a 1944 blizzard. The article mentioned that the streets were not plowed, and that people drove over packed snow until spring melting. In a similar snow storm today, the streets would be plowed free of snow in a day or so, and the exposed black-top would heat the above-lying air. Add to this more streets, more housing, and more air conditioners pumping heat into the air in the summer; it becomes quite easy to see what causes urban heat islands that can bias historical temperature data. Even at airports, the change from grassed runways to paved runways, then to multiple paved runways, to new near-by commercial or industrial buildings; all add up to more heat generating surfaces that do increase local temperature readings. If the temperature data is not

corrected for these local micro-climate changes, or if the long term data are not restricted to areas away from recent urban land use changes, then recent warming statistics from ground level stations may not reflect real world continental temperature trends from ground level stations.

CONCLUSION

Carbon dioxide does not meet any possible definition of having the ability to pollute. It is a clear, odorless, tasteless, colorless, invisible gas; which under normal circumstances is stable, inert, and non-toxic. Thus it is not a pollutant which makes the atmosphere unclean or unfit for use. A review of the history of CO_2 in the atmosphere shows that in distant past, the concentrations in air were 16 to over 25 times more than at present. Thus life will go on in spite of modest recent and on-going increases in CO_2.

A brief review of geological history shows that 95% of the time since the end of Carboniferous/mid-Permian glaciation, the earth has been free of continental glaciation. Thus the normal status of the Earth is one free of continental glaciation. No one can stop the Earth and its climate from returning to this normal status.

In addition, in review of the CO_2 data for the Ordovician and Carboniferous periods, the CO_2 concentrations in the atmosphere did not consistently demonstrate that decreasing CO_2 concentrations lead to continental glaciation, nor were rising concentrations a cause of the end of the glacial periods.

Looking at the more refined data from sediment and ice cores, there is no meaningful pattern of decreasing CO_2 concentrations starting recent ice ages, and no increasing CO_2 concentrations ending recent ice ages. On an even finer scale, the data from the past 10,000 years of

glacial retreat had many interruptions with glacial advances on a world wide scale. Rather than CO_2 being driving force for all these changes, both large and small, it turns out that there are many complex environmental interactions which alter CO_2 concentrations when climate changes occur due to causes other than rising CO_2 concentrations.

Respectfully submitted,

Jerome B. Carr

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Dated: 29 August 2006